

RESEARCH TOOLS 2011

VIDEO 11

2011-Oct-12

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UNH CCOM/JHC

Python Part 4: if, IM-Python in emacs, sys.argv, comments



Thursday, October 13, 2011

<http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/>

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RT Video 11 - Python Part 4 - if, while, command line arguments

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[RT Video 11 - Python Part 4 - if, while, command line arguments](#)

Kurt Schwehr
2011-Oct-12
UNH CCOM/JHC



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```
researchtools@ubuntu:~/video/11$ ipython --pylab
Python 2.7.1+ (r271:86832, Apr 11 2011, 18:05:24)
Type "copyright", "credits" or "license" for more information.

IPython 0.10.1 -- An enhanced Interactive Python.
?          -> Introduction and overview of IPython's features.
%quickref  -> Quick reference.
help       -> Python's own help system.
object?   -> Details about 'object'. ?object also works, ?? prints more.
```

```
Welcome to pylab, a matplotlib-based Python environment.
For more information, type 'help(pylab)'.
```

```
In [1]: if True:
...:     print 'yes'
...:
...:
yes
```

```
In [2]: if False:
...:     print 'yes'
...:
...:
```

```
In [3]:
```



video

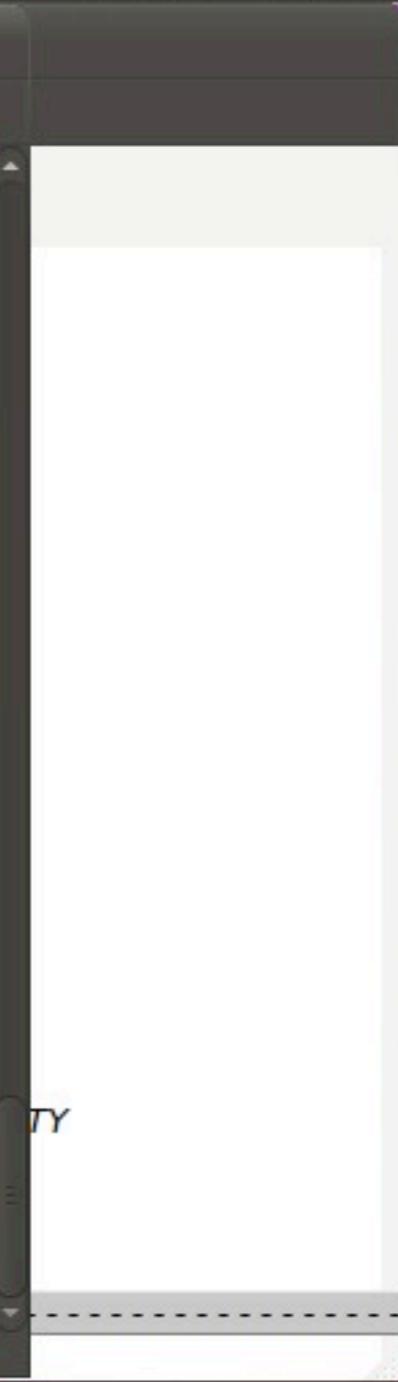
```
...:     print 'yes'
...:
...:
In [3]: if True:
...:     print 'yes'
...: else:
...:     print 'no'
...:
...:
yes

In [4]: if False:
...:     print 'yes'
else:
...:     print 'no'
...:
...:
no

In [8]: type (False)
Out[8]: <type 'bool'>

In [9]: type (True)
Out[9]: <type 'bool'>

In [10]:
```



video

```
In [10]: 1==1
Out[10]: True

In [11]: 1!=1
Out[11]: False

In [12]: 1>1
Out[12]: False

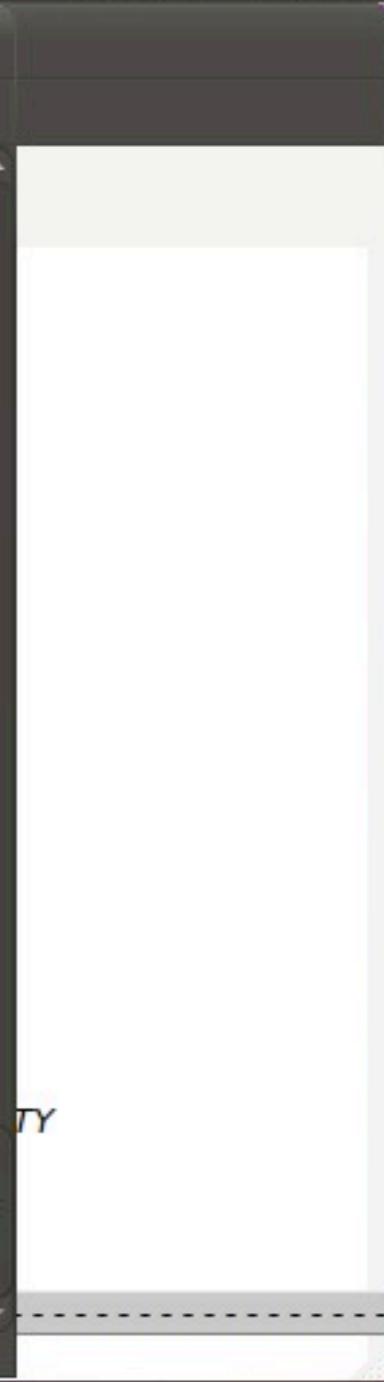
In [13]: 1>=1
Out[13]: True

In [14]: (1==1 && 2==2)
-----
File "<ipython console>", line 1
    (1==1 && 2==2)
      ^
SyntaxError: invalid syntax

In [15]: (1==1 and 2==2)
Out[15]: True

In [16]: (1==1 or 2==2)
Out[16]: True

In [17]: (1==1 or 2==2)
```



```
In [17]: (1!=1 or 2!=2)
Out[17]: False

In [18]: 'hell' in 'hello world'
Out[18]: True

In [19]: 4 in [1,2,6,7]
Out[19]: False

In [20]: 4 in [1,2,6,7,4]
Out[20]: True

In [21]: 'equal' if 1==0 else 'not really equal to'
Out[21]: 'not really equal to'

In [22]: print '1==0 is ', 'equal' if 1==0 else 'not really equal to', ' and more text'
1==0 is not really equal to and more text

In [23]: print '1==1 is ', 'equal' if 1==1 else 'not really equal to', ' and more text'
1==1 is equal and more text

In [24]: answer = 'yes' if True else 'no'

In [25]: answer
Out[25]: 'yes'

In [26]: answer = 'yes' if True else 'no'
```



video

```

In [20]: 4 in [1,2,6,7,4]
Out[20]: True

In [21]: 'equal' if 1==0 else
Out[21]: 'not really equal to

In [22]: print '1==0 is ', 'e
1==0 is not really equal to

In [23]: print '1==1 is ', 'e
1==1 is equal and more text

In [24]: answer = 'yes' if Tr

In [25]: answer
Out[25]: 'yes'

In [26]: answer = 'yes' if 10

In [27]: answer
Out[27]: 'no'

In [28]: print name
__main__

In [29]:

```

```

print __name__

```

-U:**- try_args.py All L2 (Python yas)



```

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File Edit View Search Termin File Edit Options Buffers Tools IM-Python Python YASnippet Help
In [24]: answer = 'yes' if Tr
In [25]: answer
Out[25]: 'yes'
In [26]: answer = 'yes' if 10
In [27]: answer
Out[27]: 'no'
In [28]: print __name__
__main__
In [29]: run try_args.py
__main__
In [30]: import try_args
try_args
In [31]: run try_args.py
__main__
In [32]: reload try_args
-----> reload(try_args)
Out[32]: <module 'try_args' f
In [33]:

```

```

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if __name__ == '__main__':
    # Act like a program
    print __name__

```

-U:--- try_args.py All L6 (Python yas)-----



```

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In [27]: answer
Out[27]: 'no'

In [28]: print __name__
__main__

In [29]: run try_args.py
__main__

In [30]: import try_args
try_args

In [31]: run try_args.py
__main__

In [32]: reload try_args
-----> reload(try_args)
Out[32]: <module 'try_args' f

In [33]: reload try_args
-----> reload(try_args)
Out[33]: <module 'try_args' f

In [34]: try_args.main()
start of main

In [35]: 

```

```

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def main():
    print 'start of main'

if __name__ == '__main__':
    # Act like a program
    main()

-U:--- try_args.py All L9 (Python yas)

```



video

```
In [36]: sys.argv?
Type: list
Base Class: <type 'list'>
String Form: ['/usr/bin/ip
Namespace: Interactive
Length: 2
Docstring:
list() -> new empty list
list(iterable) -> new lis

In [37]: sys.argv
Out[37]: ['/usr/bin/ipython',

In [38]: run try_args.py
start of main
sys.argv: ['try_args.py']

In [39]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he

In [40]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he

In [41]:
```

```
import sys

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv

if __name__ == '__main__':
    # Act like a program
    main()
```

-U:**- try_args.py All L6 (Python yas)



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```
In [36]: sys.argv?
Type: list
Base Class: <type 'list'>
String Form: ['/usr/bin/ip
Namespace: Interactive
Length: 2
Docstring:
list() -> new empty list
list(iterable) -> new lis

In [37]: sys.argv
Out[37]: ['/usr/bin/ipython',

In [38]: run try_args.py
start of main
sys.argv: ['try_args.py']

In [39]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he

In [40]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he

In [41]:
```

```
import sys

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for argument in sys.argv:
        print 'an argument:', argument

if __name__ == '__main__':
    # Act like a program
    main()
```

-U:--- try_args.py All L7 (Python yas)-----
Wrote /home/researchtools/video/11/try_args.py



```

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File Edit View Search Termin
sys.argv: ['try_args.py', 'he
In [40]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
In [41]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py
an argument: hello
an argument: world
an argument: 1
an argument: 2
an argument: 1000
In [42]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
an argument: hello is arg num
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:
In [43]:

```

```

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File Edit Options Buffers Tools IM-Python Python YASnippet Help
import sys

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        print 'an argument:', argument, 'is arg num:', arg_number

if __name__ == '__main__':
    # Act like a program
    main()

```

-U:--- try_args.py All L11 (Python yas)-----



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```

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File Edit View Search Termina
an argument: try_args.py
an argument: hello
an argument: world
an argument: 1
an argument: 2
an argument: 1000

In [42]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
an argument: hello is arg num
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:

In [43]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:

In [44]:

```

```

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File Edit Options Buffers Tools IM-Python Python YASnippet Help
import sys

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        if 'hell' in argument:
            continue
        print 'an argument:', argument, 'is arg num:', arg_number

if __name__ == '__main__':
    # Act like a program
    main()

-U:--- try_args.py All L13 (Python yas)

```



```

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File Edit View Search Termina
an argument: try_args.py is a
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:

In [44]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:

In [45]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
----> give up
done with for

In [46]:

```

```

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File Edit Options Buffers Tools IM-Python Python YASnippet Help
import sys

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        if 'hell' in argument:
            print '----> skip hell'
            continue
        if '2' in argument:
            print '----> give up'
            break
        print 'an argument:', argument, 'is arg num:', arg_number
    print 'done with for'

if __name__ == '__main__':
    # Act like a program
    main()

-U:--- try_args.py All L14 (Python yas)

```



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```

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File Edit View Search Termina
an argument: try_args.py is a
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:

In [44]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:

In [45]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
----> give up
done with for

In [46]:

```

```

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File Edit Options Buffers Tools IM-Python Python YASnippet Help
*Rescan*
main
import sys

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        if 'hell' in argument:
            print '----> skip hell'
            continue
        if '2' in argument:
            print '----> give up'
            break
        print 'an argument:', argument, 'is arg num:', arg_number
    print 'done with for'

if __name__ == '__main__':
    # Act like a program
    main()

-U:--- try_args.py All L15 (Python yas)-----
menu-bar index

```



```

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File Edit View Search Termina
an argument: try_args.py is a
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:
In [44]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:
In [45]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
----> give up
done with for
In [46]:

```

```

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File Edit Options Buffers Tools IM-Python Python YASnippet Help
*Rescan*
hello_world
main
import sys

def hello_world():
    print 'hello world'

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        if 'hell' in argument:
            print '----> skip hell'
            continue
        if '2' in argument:
            print '----> give up'
            break
        print 'an argument:', argument, 'is arg num:', arg_number
    print 'done with for'

if __name__ == '__main__':
    # Act like a program
    main()
-U:**- try_args.py All L4 (Python yas)-----
menu-bar index

```



```

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File Edit View Search Termin...
an argument: try_args.py is a
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:
In [44]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:
In [45]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
----> give up
done with for
In [46]:

```

```

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File Edit Options Buffers
import sys

mylist = [1,10,'hi']

def hello_world():
    print 'hello world'

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, arg_value in enumerate(sys.argv):
        if 'hell' in arg_value:
            print '----> skip hell'
            continue
        if '2' in arg_value:
            print '----> give up'
            break
        print 'an argument: %s is arg num: %s' % (arg_value, arg_number)
    print 'done with for loop'

if __name__ == '__main__':
    # Act like a program
    main()

```

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- Search Files (Grep)...
- Compile... <f1>
- Shell Command... M-!
- Shell Command on Region... M-|
- Debugger (GDB)...
- Project support (EDE)
- Source Code Parsers (Semantic)**
- Spell **Toggle automatic parsing in source code buffers (Semantic mode)**
- Compare (Ediff) >
- Merge >
- Apply Patch >
- Version Control >
- PCL-CVS >
- Read Net News (Gnus)
- Read Mail (with RMAIL)
- Send Mail (with Gnus Message) C-x m
- Directory Search >
- Calendar
- Programmable Calculator
- Simple Calculator
- Encryption/Decryption >
- Games >

```

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File Edit View Search Termina
an argument: try_args.py is a
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:
In [44]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:
In [45]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
----> give up
done with for
In [46]:

```

```

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File Edit Options Buffers Tools IM-Python Python YASnippet Development Help
*Rescan*
Variables mylist
Functions
Imports
Code

import sys

mylist = [1,10,'hi']

def hello_world():
    print 'hello world'

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        if 'hell' in argument:
            print '----> skip hell'
            continue
        if '2' in argument:
            print '----> give up'
            break
        print 'an argument:', argument, 'is arg num:', arg_number
    print 'done with for'

if __name__ == '__main__':
    # Act like a program
    main()

-U:**- try_args.py All L3 (Python yas)
Mark set

```



```

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File Edit View Search Termina
an argument: try_args.py is a
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:

In [44]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
an argument: 2 is arg num: 4
an argument: 1000 is arg num:

In [45]: run try_args.py hell
start of main
sys.argv: ['try_args.py', 'he
an argument: try_args.py is a
----> skip hell
an argument: world is arg num
an argument: 1 is arg num: 3
----> give up
done with for

In [46]:

```

```

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File Edit Options Buffers Tools IM-Python Python YASnippet Development Help
#####
mylist = [1,10,'hi']

def hello_world():
    print 'hello world'

def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        if 'hell' in argument:
            print '----> skip hell'
            continue
        if '2' in argument:
            print '----> give up'
            break
        print 'an argument:', argument, 'is arg num:', arg_number
    print 'done with for'

if __name__ == '__main__':
    # Act like a program
-U:**- try_args.py Top L3 (Python yas)
C-u 4 0 #

```



```

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In [48]: try_ar
try_args      try_args.py

In [48]: try_args.
try_args.__builtins__
try_args.__class__
try_args.__delattr__
try_args.__dict__
try_args.__doc__
try_args.__file__
try_args.__format__
try_args.__getattr__
try_args.__hash__
try_args.__init__

In [48]: try_args.hello_world
Type:      function
Base Class: <type 'functi
String Form: <function hel
Namespace: Interactive
File:      /home/research
Definition: try_args.hell
Docstring: <no docstring>

In [49]:

```

```

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import sys

#####
mylist = [1,10,'hi']

#####
def hello_world():
    print 'hello world'

def end_of_world():
    print 'good bye'

#####
def main():
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        if 'hell' in argument:
            print '----> skip hell'
            continue
        if '2' in argument:
            print '----> give up'

-U:**- try_args.py Top L8 (Python yas)

```



```

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File Edit View Search Termin
In [48]: try_args.hello_world
Type: function
Base Class: <type 'functi
String Form: <function hel
Namespace: Interactive
File: /home/research
Definition: try_args.hell
Docstring:
    <no docstring>

In [49]: reload try_args
-----> reload(try_args)
Out[49]: <module 'try_args' f

In [50]: try_args.hello_world
Type: function
Base Class: <type 'functi
String Form: <function hel
Namespace: Interactive
File: /home/research
Definition: try_args.hell
Docstring:
    Print hello world. Prett

In [51]:

```

```

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import sys

#####
mylist = [1,10,'hi']

#####
def hello_world():
    'Print hello world. Pretty boring'
    print 'hello world'

def end_of_world():
    print 'good bye'

#####
def main():
    ...
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):
        if 'hell' in argument:
            print '----> skip hell'
            continue
        if '2' in argument:

```

-U:**- try_args.py Top L16 (Python yas) -----



```

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In [52]: try_args.
try_args.__builtins__
try_args.__class__
try_args.__delattr__
try_args.__dict__
try_args.__doc__
try_args.__file__
try_args.__format__
try_args.__getattr__
try_args.__hash__
try_args.__init__

In [52]: try_args.main?
Type:          function
Base Class:   <type 'functi
String Form:  <function mai
Namespace:   Interactive
File:        /home/researc
Definition:  try_args.main
Docstring:
This is a multiline descr
Write lots and lots about

In [53]:

```

```

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import sys

#####
mylist = [1,10,'hi']

#####
def hello_world():
    'Print hello world.  Pretty boring'
    print 'hello world'

def end_of_world():
    print 'good bye'

#####
def main():
    '''
    This is a multiline description.

    Write lots and lots about the function here.
    '''
    print 'start of main'
    print 'sys.argv:', sys.argv
    for arg_number, argument in enumerate(sys.argv):

```

-U:--- try_args.py Top L12 (Python yas)-----

